DOCUMENT RESUME

ED 280 869 TM 870 197

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TITLE Multiple Measures and Needs Assessment.
PUB DATE Nov 84
NOTE 30p.; Paper presented at the Annual Meeting of the National Council of States on Inservice Education (Orlando, FL, November, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Guides - Non-Classroom Use (055)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Needs; Elementary Secondary Education; Higher Education; *Informal Assessment; *Interviews; *Needs Assessment; Questionnaires; Surveys; Teaching Guides; Test Construction; *Tests; *Test Selection

ABSTRACT

This document presents instructor's materials for a unit on use of tests and measures for conducting needs assessment. It also contains material for 11 transparencies and 4 exhibits (list of 20 informal measures; tips on selecting and using tests; tips on selecting measures; and tips on conducting the interview). It is assumed that needs assessment is conducted for individual students, grade levels, individual schools, professional staff, service personnel, or community residents. It is also expected that a needs assessment uses a variety of formal and informal measures. Topics include: (1) formal assessment procedures (norm-referenced achievement tests, group or individual diagnostic tests, and criterion-referenced tests); (2) informal assessment procedures, such as teacher-developed tests; and (3) quasi-formal techniques (interviews and survey questionnaires). Sample survey questions are included in the transparencies. An evaluation form for this presentation is also included. (GDC)

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ED280869

MULTIPLE MEASURES

AND

NEEDS ASSESSMENT

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Presented at the National Council of States on
Inservice Education National Conference
November 1984, Orlando, Florida

TM 890 197

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MULTIPLE MEASURES AND NEEDS ASSESSMENT

INTRODUCTION

Trainer: Refer to the comments below as an introduction to this topic.

The design of appropriate staff development activities is dependent on both individual and system needs. An educational need is defined as the difference or gap between present performance and desired performance as determined by locally established standards. This determination is made by both formal and informal measures. Formal measures are measures that include validity and reliability estimates; informal measures do not include such estimates. Briefly, formal measures help to answer questions in a valid and reliable manner. Formal measures include the instruments discussed below. (This is not intended to be an inclusive list.)

FORMAL ASSESSMENT PROCEDURES

Trainer: Project transparency number one and use the comments below to explain each procedure.

1. NORM-REFERENCED ACHIEVEMENT TESTS. (Also known as group tests, survey tests, or standardized tests.) The norm-referenced test is the type most commonly used in school systems in their regular testing program. This type of test generally yields only one or two scores and provides norms in one or more of the following ways: percentiles, grade level equivalents, stanines, stens, deciles, etc.

Norm-referenced tests can be useful when used for the purpose for which they were designed. Such tests show relative rather than absolute levels of achievement. That is they measure the achievement level of groups of students compared with the norms established by the original test group. They are not sufficiently sensitive to be used to measure the progress of a program or individual student from year to year. When one is interested in determining the general level of a student's or a class's achievement, the norm-referenced test can be useful. When a school system is going to use the same test over several years, it is often recommended that local norms be developed.

2. GROUP DIAGNOSTIC TESTS. These tests are also referred to as "analytic" tests or "inventories". The term diagnostic is used here since it seems to be the name most commonly used. It is likely, however, that one of the other terms is more accurate. Diagnosis ordinarily connotes a search for causation or an explanation for a condition and these tests are not designed for that purpose. They are analytic in that they measure more specific aspects of a program or tell what kinds of problems respondents are having. Most diagnostic tests take anywhere from two to four hours to administer, but do provide more information on an individual basis than the norm-referenced tests, which require a shorter period of time for administration.

3. INDIVIDUAL DIAGNOSTIC TESTS. (Again, the term "diagnostic" can be misleading.) These tests must be administered to one respondent at a time with some skill and experience required on the part of the examiner. These tests give information about more specific deficiency areas than do the other tests and, in addition, allow the

examiner to observe a respondent's habits and skills more closely and to make judgments about aspects of a respondent's ability that are not seen in the group situations.

4. CRITERION-REFERENCED TESTS. In a norm-referenced test, the scores derived are relative--that is, they show how a respondent's score compares with that of other respondents who have taken the test (the standardization group). A criterion-referenced test is more closely aligned with an absolute measure; that is, we find out what skills a respondent does and does not possess regardless of what other respondents do. Such tests set certain standards of "mastery". For instance, a respondent must pass three of five items testing a certain skill in order to show that he has mastered the skill. These tests could also be called analytic since they generally measure a large number of specific skill areas. Local schools can design their own criterion-referenced tests which will measure progress toward the specific objectives the school has set as its own. There are commercially published criterion-referenced tests which will measure progress toward the specific objectives the school has set as its own. There are commercially published criterion-referenced tests and "kits" available which contain pretests, posttests, and brief tests between to measure ongoing progress; however, you must be very sure that these tests are valid. Additional teaching procedures may also be included.

INFORMAL ASSESSMENT PROCEDURES

Trainer: The following paragraph is intended as an introduction to informal measures.

While often lacking the statistical validity, reliability, and sophistication of formal measures, informal measures can and do offer a great deal of pertinent information. This information can be collected in a short time but becomes cumulative in nature and can be a precise indicator of respondent knowledge level and/or needs.

Trainer: Hand out EXHIBIT 1a, "INFORMAL MEASURES". Emphasize the teacher-made tests by highlighting the following aspects of such tests.

1) Teacher-made tests can be geared specifically to the particular objectives of the local system or classroom.

2) Teacher-made tests can be administered at any time, as often as indicated.

3) Teacher-made tests can be used diagnostically in a pretest/posttest design.

Emphasize and encourage the use of these items; point out that these sources are cumulative and ongoing. In brief, these data are there; they can indeed indicate specific needs.

QUASI-FORMAL NEEDS ASSESSMENT TECHNIQUES

Trainer: Project transparency number two and refer to the comments below to explain interviews.

1. INTERVIEWS are quasi-formal measures. If well constructed, interviews can be meaningful and valid. There are essentially two types of interviews--1) open-ended or unstructured and 2) closed or structured.

Open-ended interviews do not include predetermined response categories. They can be rich in detail and spontaneity. However, unstructured interviews can be lengthy and off target. This technique also requires the construction of response categories after the fact; this

can be difficult and tedious. They also require a highly skilled interviewer to probe.

Trainer: Project transparency number three and explain to the participants that it is an example of the open-ended item.

Structured interviews have narrow, precise response categories. They can be constructed to resemble a checklist. In fact, they are not much different from survey questionnaires. Less technical skill is required from the interviewer because of specific, predetermined response categories and probing is reduced. Interviews can be expensive if there are a large number of respondents.

Trainer: Project transparency number four and explain that it is an example of the structured interview. Note the specific, predetermined response categories and the specific instruction (in parenthesis) to the interviewer.

Tips On How To Conduct The Interview

- Make a brief introductory statement describing 1) who you are, 2) who the interview is for, 3) why it is being conducted, and 4) assure anonymity.
- Impress the respondent with the importance of the interview and the answers.
- Be flexible but try to stay on schedule.
- Interview respondents alone.
- Stick to the interview schedule exactly as it is structured.
- Follow all instructions given at the training session and described on the schedule.

Trainer: Project transparency number five and refer to the comments below to explain questionnaires.

2. SURVEY QUESTIONNAIRES are also a special "breed" of quasi-formal measures. They can be administered to 1) a large

population, 2) in a short time, and 3) at minimum cost. If the questionnaires are mailed, two problems are almost sure to arise: 1) percentage of return, and 2) added costs of postage and follow-up. Questionnaires also lack the richness and depth of responses generated by interviews. However, there is no interviewer bias in questionnaires.

The major problem with mailed questionnaires is a low and probably unrepresentative response rate. Some respondents may be unable to read the items; some may be bored; and some may simply dislike filling out a questionnaire. Even if the questionnaires are administered on the spot to a "captive audience," these problems might arise but can be mediated on the spot. To boost the response rate on mailed questionnaires, 1) send a pre-letter, 2) mail a cover letter, 3) offer to send a summary of the findings, 4) keep it short and simple, 5) offer incentives such as money or a nominal gift, e.g., a pen, and 6) follow up with reminders (mail or phone). NOTE: This method is usually used jointly with interviews.

Items are similar to those used in interview schedules. However, more precision and simplicity of wording are required on questionnaire items, especially mailed ones. For example:

1. Keep response options independent of one another as the following transparency illustrates.

Trainer: Project transparency number six. Explain that a person could be an evaluator and a teacher; a developer and a teacher; and so on. The "Better" version is less ambiguous and allows for valid data.

Project transparency number seven and explain as follows. Provide a response category for every possible answer. If you omit a choice, respondents may guess and this results in invalid data. The inclusion of the "Don't know" category in the "Better" version gives respondents an opportunity to provide accurate answers.

Project transparency eight and explain thusly. Keep scales balanced with an equal number and degree of choices.

Project transparency number nine and explain as follows. Make the items precise so the respondent knows clearly what information you want.

Project transparency number ten and urge participants to place responses vertically instead of horizontally. Respondents may not be sure which line is the correct one to check for "yes" when placed horizontally.

Project transparency number eleven and critique as follows. The objectives and possible response categories are cluttered, confusing, and not unidimensional. More specifically, the dual dimensions of acquire and implement (objective 1); learn and practice (objective 2); and design and implement (objective 3) are lodged in each respective objective. Consequently, whichever box the respondent fills in, the nagging question remains: What dimension is being tapped? Is it acquire, implement, or both (objective 1) and etc. for each objective?

Tips for Constructing Interviews/Questionnaires

- Guarantee anonymity.
- Number all items and pages.
- Maintain a consistent format.
- Be sure to include a "no answer," "don't know," and/or "not sure" category.
- Pretest the instrument(s).
- Have one question per line that calls for only one answer.
- Don't clutter the instrument(s) by trying to crowd a page.
- Avoid value laden words.
- Include directions when necessary.
- Identify yourself and state the purpose(s) of the study.

CONCLUDING REMARKS

Needs assessment (NA) can be conducted for indivdiuals, groups, or organizations. In an educational setting, the most common NA targets would include 1) individual students, 2) grade level(s), 3) individual

school(s), 4) all professional staff, 5) service personnel, and 6) community residents. The critical aspect in any NA is that it utilize multiple measures and be thorough enough to determine whether a real need exists, or a defensible want or desire is being identified.

Earlier need was defined as a gap between present performance and desired performance as determined by locally established standards. You can measure this gap objectively or estimate it subjectively. Using the first method, you compare measured performance with desired performance. Using the second method, you select people whose judgment you trust to identify a need in a given area.

Using either method, a value judgment is necessary. Someone has to establish the acceptable level of performance (standard) or someone has to determine a need exists. Whichever method you use (and they are often used interchangeably or concurrently), the more valid and reliable the data that are collected and the more confidence you can have that a real need is being identified.

Selecting and Using Tests -- In deciding on evaluation instruments, the important concept to keep in mind is the relevance of the test for your purposes, particularly in the case of norm-referenced tests. One should be aware that the standardization sample may not be representative of your group.

Trainer: As a summary distribute EXHIBITS 2b, 3c, and 4d for post-workshop information and reinforcement. There is a need to emphasize the importance of these exhibits for future reference and use.

References

How to use interviews. How To Evaluate Education Programs, 1979,3,10, 1-8. Washington, D.C.: Capitol Publications, Inc.

How to use questionnaries. How To Evaluate Education Programs, 1979, 3,9,1-8. Washington, D.C.: Capitol Publications, Inc.

FORMAL ASSESSMENT PROCEDURES

1. NORM-REFERENCED ACHIEVEMENT TESTS

   ALSO KNOWN AS GROUP TESTS, SURVEY TESTS, OR STANDARDIZED TESTS

2. GROUP DIAGNOSTIC TESTS

   ALSO REFERRED TO AS ANALYTIC TESTS OR INVENTORIES

3. INDIVIDUAL DIAGNOSTIC TESTS

   PROVIDE MORE SPECIFICS ABOUT DEFICIENCY AREAS THAN DO THE OTHER TESTS

4. CRITERION-REFERENCED TESTS

   ASSESS SKILLS A RESPONDENT HAS OR HAS NOT MASTERED ACCORDING TO A SPECIFIC PERFORMANCE STANDARD

INTERVIEWS

1. OPEN-ENDED
2. CLOSED
3. RICH IN DETAIL
4. CAN BE EXPENSIVE
5. TIME CONSUMING

PLEASE LIST TWO SKILLS YOU FEEL A CURRICULUM SPECIALIST SHOULD POSSESS.

1. _____

_____

2. _____

_____

WHICH DESCRIBES YOUR YEARLY FAMILY INCOME? (MARK THE INTERVIEWEE'S CHOICE.)

_____ UNDER $10,000

_____ $10,000 - $20,000

_____ $20,000 - $30,000

_____ OVER $30,000

_____ DON'T KNOW

_____ NO ANSWER

SURVEY QUESTIONNAIRES

1. CAN INCLUDE LARGE POPULATION

2. SHORT ADMINISTRATION TIME

3. MINIMUM COST

4. LOW RATE OF RETURN ON MAILED QUESTIONNAIRES

POOR: WHICH OF THE FOLLOWING ARE YOU?

_____ AN EVALUATOR

_____ A TEACHER

_____ A CURRICULUM DEVELOPER

_____ AN INSTRUCTIONAL MEDIA EXPERT

BETTER: WHICH OF THE FOLLOWING POSITIONS DO YOU FILL?

	YES	NO
EVALUATOR	___	___
TEACHER	___	___
CURRICULUM DEVELOPER	___	___
INSTRUCTIONAL MEDIA EXPERT	___	___
OTHER (PLEASE SPECIFY)	_____	

POOR: DOES YOUR SCHOOL HAVE INSULATION?

___ YES

___ NO

BETTER: DOES YOUR SCHOOL HAVE INSULATION?

___ YES

___ NO

___ DON'T KNOW

GOOD:	STRONGLY AGREE	GOOD:	ALWAYS
	AGREE		FREQUENTLY
	NEUTRAL		SOMETIMES
	DISAGREE		NEVER
	STRONGLY DISAGREE		

POOR: WHERE WERE YOU BORN?

BETTER: IN WHAT CITY AND STATE WERE YOU BORN?

POOR:	_____	YES	_____	NO
BETTER:	_____	YES		
	_____	NO		

1. RATE THE DEGREE TO WHICH EACH STATED STAFF DEVELOPMENT OBJECTIVE WAS MET: (OBJECTIVES ARE ATTACHED. REFER TO THEM IN YOUR RATING.)

3 = FULLY; 2 = SOMEWHAT; 1 = NOT MET

OBJECTIVE 1	OBJECTIVE 2	OBJECTIVE 3

PAGE 2

OBJECTIVES

1. STAFF DEVELOPMENT SPECIALISTS WILL ACQUIRE AND IMPLEMENT SKILLS IN CONSTRUCTING A NEEDS ASSESSMENT.

2. STAFF DEVELOPMENT SPECIALISTS WILL LEARN AND PRACTICE CURRENT RESEARCH FINDINGS IN NEEDS ASSESSMENT.

3. STAFF DEVELOPMENT SPECIALISTS WILL DESIGN AND IMPLEMENT A NEEDS ASSESSMENT INSTRUMENT.

EXHIBIT 1a

INFORMAL MEASURES

1. Teacher-made tests
2. Systematic observation checklists
3. Textbook mastery tests
4. Oral quizzes
5. Self-evaluation
6. Teacher-student conferences
7. Skills checklist
8. Progress charts
9. Cumulative folders of respondent or target population projects/ products
10. Anecdotal records
11. Rating scales
12. Committee reports
13. Job description/analysis
14. Attendance reports
15. Use requests
16. Staff meetings
17. Evaluations
18. Mass media concerns
19. Accreditation reports
20. Professional organizations

EXHIBIT 2b

SELECTING AND USING TESTS

1. Look at such sources as the Buros Mental Measurements Yearbooks, (Gryphon Press, Highland Park, New Jersey) which provide information and critical reviews of published tests and The Standards for Educational and Psychological Tests (American Psychological Association, Inc., 1200 17th Street, NW, Washington, D.C. 20036).
2. Secure specimen sets of tests you may want to select and carefully study the administration and technical manual.
   a. Look at the standardization groups used. If the people represented are intended to be typical nationwide samples, ask yourself how typical your group is and how typical your methods and materials are. Does the test measure the objectives your school system feels are important? This is the key question.
   b. If "special" norms are used for "special" groups such as "Title I" students, private school norms, etc., decide whether these norms are useful to you.
3. What kind of scores are offered?
   a. One of the most frequently used types of scores is the "grade level equivalent." Such scores are losing popularity since they can be misleading. It is difficult to determine what, for instance, a student in the 5th grade ought to know. A score of 5.6 reflects what a student achieved on the test. It is a reflection of what the typical student did, but does not necessarily reflect what a fifth-grader in your school "ought" to do.

b. The entire range of scores of the standardization sample may be divided into 100 units called percentiles. A student who scores at the 63rd percentile has done better than 63% of the students in the standardization sample. It does not mean that he has passed 63% of the students in the class or school.

c. Since the percentile score is often a finer measure than is needed, increasingly the standard nine (stanine) score is being used. This divides the range of scores into nine rather than 100 divisions. Stanine 7, 8, and 9 can be considered high; 4, 5, and 6 in the middle; and 1, 2, and 3 low. In some cases, there is a trend toward the use of stanine scores rather than IQ's on group intelligence tests. This is a useful trend since the IQ often implies a precision which is not justified.

4. Is the test one which can be easily administered, scored, and interpreted by those who will be performing those tasks?

5. Does the test provide information not easily obtainable by another means?

6. Remember that not all respondents will be measured accurately by tests.

7. When you are certain that a test score is invalid for any reason, be sure to note that fact when recording the score, if it is necessary to record that score at all.

8. Tests are to be used for the benefit of the education of respondents. Any use which is harmful to respondents, their self-concepts, or their educational progress is to be avoided.

EXHIBIT 3c

TIPS ON SELECTING MEASURES

The results of any assessment form a data base for further study and decision making. Also, results must be coordinated with background facts and they must be verified by comparison with other available data. It is for this reason that multiple measures should be used in any assessment. Furthermore, prior to selecting any measure, whether a paper and pencil test or performance measure, you must know the following about the assessment situation:

1) The purposes of assessment (i.e., goals, objectives, and standards)
2) The characteristics of respondents involved (e.g., age, and language spoken, read, and written)
3) The kinds of decisions to be made based upon the interpretation of the results (i.e., continuation of current practice or program modification or new program selection and implementation)

Once you know the above, you can review measures and determine their appropriateness to the situation. It is critical to know each measure completely: how it measures what it claims to measure and all available information on its past use including any statistical data available. Further, since the measures will provide partial indicators of mastery of the objectives, you will need to examine carefully the indicators you expect to use. Following is a checklist to ask yourself about each indicator:

1) How relevant is the indicator to the goals, objectives, and standards set?

2) Is the indicator valid?

3) Is the indicator reliable?

4) How many factors affect the indicator: Do you know which effects are produced by each factor? Do you know why?

5) Who is to gather information for the indicator? Are these people properly trained and appropriately placed?

6) Is the indicator subjectively or objectively quantified? How does this affect it?

7) What effects, if any, does the indicator have on the populations or institutions it assesses and evaluates? (For example, are there negative emotions or reactive effects* that can confound interpretations of the data?)

8) How vulnerable is the indicator to response patterns (i.e., responses that are not thought through)?

9) Is the indicator biased against or in favor of specific populations? If so, how?

In summary, when selecting a measure, it is critical to know <u>why</u> you are measuring, <u>whom</u> you are measuring, and <u>what</u> decisions will be made based on the results.

* Reactive effects are those effects resulting from the program or measurement, but not related to the substance of the program or measurement.

EXHIBIT 4d

TIPS ON HOW TO CONDUCT THE INTERVIEW

- Make a brief introductory statement describing 1) who you are, 2) who the interview is for, 3) why it is being conducted, and 4) assure anonymity.
- Impress the respondent with the importance of the interview and the answers.
- Be flexible but try to stay on schedule.
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- Pretest the instrument(s).
- Have one question per line that calls for only one answer.
- Don't clutter the instrument(s) by trying to crowd a page.
- Avoid value laden words.
- Include directions when necessary.
- Identify yourself and state the purpose(s) of the study.

A-H JRL/2
11/5/84

PRESENTATION POSTSCRIPT

Title of Presentation _____

Presenter _____ Date _____

1. Please indicate your teaching experience.

_____ 1-3 years

_____ 4-6 years

_____ 7-10 years

_____ more than 10 years

2. Your professional affiliation is:

_____ Local education agency

_____ Intermediate service agency

_____ State department (specify state) _____

_____ College or university

_____ Consultant

_____ Other (specify) _____

3. Rate the usefulness of the content in terms of your job responsibilities. (Placing a (✓) mark in the appropriate box.)

Useful | | | | | | Useless

4. Rate the effectiveness of the presenter.

Effective | | | | | | Ineffective

5. How motivated are you to apply the ideas.

Not at all Motivated | | | | | | Very Motivated

6. This presentation could have been more effective if:

_____

_____

_____

JRL:O/1 - 11/5/84